BOROUGH OF JARROW.

ANNUAL REPORT

OF THE

Medical Officer of Health

FOR 1898,

BY

J. M. NICOLL, M.B., C.M.

Jarrow-on-Tyne:
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1899.

To the Chairman and Members of the Sanitary Committee.

GENTLEMEN,

I beg to present you with my Fifth Annual Report on the Health of the Borough,—being the 24th of the series.

Our Mortality Rates, though not so low as in the previous year, are still satisfactory, and will compare favourably with those prevailing in other towns.

For details I beg to refer you to the Report.

I am, Gentlemen,

Your obedient servant,

J. M. NICOLL.

Jarrow, February 28th, 1899

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HEALTH REPORT, 1898.

Area of Borough, $939\frac{3}{4}$ Acres.

Density of Population, 41·5 per Acre.

Number of inhabited houses, 4,391 : 101 having been added during the year.

VITAL STATISTICS.

Population.—The population has been estimated at 39,000, and all calculations in this report are based on this estimate.

Births.—Eleven hundred and eighty three births were registered during the year, being nine less than last year, and representing an annual birth-rate per 1,000 of 30·2, as compared with 32·2 in the preceding year. The birth-rate for the 67 smaller towns, (amongst which we are grouped,) is 29·4, as compared with 30·1 in 1897. Of the registered births 24, or 2·2 per cent. were returned as illegitimate, as against 3·5 per cent last year.

Of the births 580 were males and 603 females.

The following tables shows our birth-rates since 1871 :—

BIRTH-RATES (JARROW).

Mean, 1871-80	45·2
,, 1881-90	40·5
,, 1891-95	34·2
1896	28·3
1897	32·2
1898	**30·2**

During the last three years our birth-rates have more nearly approached the average prevailing rates for the country generally.

Deaths. Six hundred and fifteen deaths were registered as having occurred within the Borough, ten of which are deducted as being non-residents, adding 51 which occurred at Harton Workhouse, 6 at Sedgefield Lunatic Asylum, and 2 in other Institutions, we have a total of 664, representing a death-rate rate of 17·02 per 1,000 of the estimated population, being the lowest recorded with three exceptions, viz. :—1897, 15·51 ; 1891, 15·53 ; and 1888, 17·1. In comparing it with last year, we must remember that on that occasion we had the lowest death-rate recorded for the Borough, and altogether an exceptionally low one. The Mortality at Harton Workhouse is this year much heavier than usual.

From the following table it will, however, be noticed that in comparison with former years, the rate is still very satisfactory.

DEATH-RATES (JARROW) PER 1000 OF THE POPULATION.

Mean of Decennium	1871-80	23·9
,, ,,	1881-90	21·1
	1891	21·8
	1892	19·1
	1893	20·2
	1894	15·5
	1895	18·3
,, Quinquennium	1891-95	18·1
	1896	17·3
	1897	15·5
	1898	17·0

Of the 664 deaths, 371 were males and 290 females, a proportion of 1,289 males to 1,000 females, as compared with a proportion of 1,028 males to 1,000 females last year when the proportion was excessively low, this year it goes to the opposite extreme.

Coroner's Inquests were held in 52 instances or 7·8 per cent. of the total registered deaths. Last year the percentage was 9·4.

THE NATURAL INCREASE of the population or number of births in excess of deaths was 519 as compared with 618 last year, 415 in 1896, 452 in 1895, and 540 in 1894.

The following table shows the Quarterly Death-rates throughout the year.—

Quarterly Death-Rates per 1,000 of the Population, Jarrow.

	Total Death-rate.	Zymotic Death-rate	Phthisis Death-rate.	Lung Disease except Phthisis Death-rate.	Infantile Mortality Rate.
First Quarter	16·51	1·71	1·12	3·69	123
Second Quarter ...	15·61	2·25	1·94	3·17	165
Third Quarter ...	18·05	3·58	1·84	2·76	252
Fourth Quarter	17·69	1·53	2·25	2·66	163
Year	17·02	2·28	1·79	3·07	174

These quarterly death rates, as usual, show much variation. In the Zymotic Diseases the rate was highest in the second and third quarters of the year, that of the first and second quarters being almost entirely due to Whooping Cough, whilst in the third quarter Diarrhœa was the chief cause of death, though in this quarter also Whooping Cough caused a very considerable mortality. In fact until the end of September this disease was prevalent all over the Borough, and helped very considerably to increase our zymotic mortality. The Phthisis death-rate was heaviest in the fourth and second quarters, whilst that from Lung Disease, excluding Phthisis, was heaviest in the first two quarters of the year. Regarding the Infant Mortality-Rate the increase of this in the third quarter is so very excessive, apart from the usual Diarrhœa Mortality, that I have for this quarter tabulated the deaths of infants under one year, and find the chief causes as follows:—Diarrhœa 17, Premature Birth 12, Pneumonia 7, Congenital Debility and Tubercular Disease 6 each, Meningitis and Convulsions 5 each, Whooping Cough and Marasmus 4 each, Bronchitis 2, all other diseases 6, total 74.

Birth-Rates and Death-Rates per 1,000 of the Population throughout England and Wales, 1898.

	BIRTH-RATE.	DEATH-RATE	ZYMOTIC DEATH-RATE.	INFANTILE MORTALITY RATE.
England and Wales ...	29·4	17·6	2·22	161
33 Large Towns ...	30·3	19·0	2·85	178
67 Smaller Towns ...	29·4	17·2	2·41	173
Jarrow	**30·2**	**17·0**	**2·28**	**174**

From this table it will be noticed that compared with the average prevailing town rates we stand in a rather favourable position, our death-rates, both zymotic and general, being lower than the general average, our Infantile Mortality Rate being one per thousand higher than the average for the 67 towns.

Infantile Mortality.—There were 267 deaths registered of infants under one year of age, being 31·1 per cent. of the total deaths as compared with 30·4 per cent. last year. Of children under five years of age there were 307 deaths, equivalent to a percentage mortality of 16·2 as compared with 17·2 last year, and 52·7 in 1896.

THE INFANTILE MORTALITY RATE, or the number of deaths under one year, to every 1,000 registered births was 174 as compared with 146 last year, and 179 the year previous. In that year, owing to the very high rate, I prepared a table showing the chief causes of death in infants under one year. The same table is given again this year.

Causes of Death in Infants under One Year of Age (Jarrow).

Diarrhœa	23	
Whooping Cough	18	
Measles	1	
Membraneous Croup	1	
		—43
Premature Birth	36	
Congenital Debility	20	
Pneumonia	23	
Marasmus	9	

Bronchitis	8	
Tubercular Disease	13	
Congenital Syphilis	8	
Convulsions	11	
Dentition	6	
Meningitis	7	
Atelectasis	6	
Accident	3	
All other diseases	14	
		164
	207	

From this it will be seen that of the Zymotic Diseases, Diarrhœa and Whooping Cough practically caused all the mortality, that from Whooping Cough being very much heavier than usual. Of the remaining causes of death, if we take Premature Birth, Congenital Debility and Atelectasis, causes of death not in any way influenced by sanitary surroundings or conditions, we find these causes responsible for 62 or 29·9 per cent. of the total infantile mortality. The other causes do not require special comment except that from Pneumonia, which is much higher than in the preceding year. The Ward distribution of the Infantile Mortality was as follows :—North 46, Central 41, South 37, West 35, East 32, Grange 16.

In the following table is given the average Infantile Mortality Rates since 1871.

Infantile Mortality-Rates, Jarrow.

Mean of Decennium	1871-80	175
„ „	1881-90	152
	1891	162
	1892	153
	1893	150
	1894	144
	1895	148
„ Quinquennium	1891-95	151
	1896	179
	1897	146
	1898	174

Deaths and Death-Rates according to Wards.

Ward.	Estimated Population.	Total Deaths and Death-rate.	Zymotic Deaths and Death-rate.	Phthisis Deaths and Death-rate.	Deaths from Inflammatory Diseases of the Lungs & Death-rate.	Deaths of Infants under One Year with Percentage Mortality.
West ...	7000	103 14·71	13 1·85	9 1·28	12 1·71	35 33·98
Grange ...	6000	56 9·33	7 1·16	6 1·00	11 1·83	16 28·57
North ...	6000	131 21·83	21 3·50	15 2·50	17 2·83	46 35·11
South ...	6100	95 14·84	15 2·31	6 0·93	14 2·18	37 38·94
East ...	6100	126 20·65	18 2·95	17 2·78	24 3·93	32 25·39
Central ...	7500	153 20·40	15 2·00	17 2·26	42 5·60	41 26·79

In this table the deaths occurring outside the Borough are considered as having occurred in the Wards in which the persons resided previous to removal. The difference in the Ward Mortality is striking, and to anyone interested in the health of the Borough, commands careful perusal.

Fatal Diseases.

DEATHS.	1895	1896	1897	1898
All Causes	658	643	574	664
The Seven Principal Zymotic Diseases ...	110	118	63	89
Smallpox	...	...	..	...
Measles	34	47	5	3
Scarlet Fever	4	6	1	...
Diphtheria, including Membranous Croup	9	8	3	3
Whooping Cough	32	27	7	42
"Fever"	4	13	5	8
Diarrhœa	27	17	42	33
Septic Diseases	4	...	...	...
Phthisis	68	46	56	70
Bronchitis, Pneumonia, &c. ...	147	109	95	120
Heart Disease	30	35	28	41
Injuries	21	22	19	28
All Other Diseases	278	313	313	316

There are this year 90 more deaths registered than there were last, whilst there are 26 more deaths from Zymotic Disease. Of the Zymotic Diseases, Whooping Cough alone shows an increase of 35 as compared with last year, in which, however, the number of deaths from this cause was exceptionally low. The only other Zymotic Disease in which there is an increase is "Fever" from which there are 8 deaths as compared with 5 last year. There have been no deaths from Scarlet Fever whilst there have been 9 fewer deaths from Diarrhœa. Last year there were 5 deaths from Measles, this year there are only three Of the remaining diseases, Phthisis, Bronchitis, Pneumonia as well as Heart Disease, all show an increase, as do also "Injuries" which includes deaths from all sorts of violence. There were only 1 deaths due to Influenza. Phthisis death-rate 1·79 as compared with 2·5 last year. Diseases of the Respiratory System, excluding Phthisis, gives a death-rate of 3·07, as compared with 2·5 last year.

In this connection it might be well to point out the fact that Phthisis which, in one form or other, causes such a terrible mortality, is a disease which to a great extent is a preventible one. This fact is happily becoming more and more grasped by the general public, as evidenced by the number of Sanatoria for the better treatment of that disease which have been opened, or are in the course of being opened, in this country, and the great interest taken in this question by the public generally. The disease is entirely due to a germ, or bacillus, which is expectorated in large numbers by Phthisical patients. These germs are very tenacious of life, and after being expectorated, and the expectoration drying, may still retain their vitality, and being conveyed through the air, on finding a suitable soil may again originate the disease. Plenty of sunlight and fresh air soon render them harmless, whilst under contrary conditions they may live indefinitely, and be a constant menace to the health of those coming in contact with them. Seeing how little care is taken to disinfect or destroy the sputa of Phthisical patients there cannot be any surprise that the disease is so common, especially when we consider the conditions of a large number of the houses in which such cases are met. Small stuffy rooms, badly lighted and imperfectly ventilated, and the patient generally expectorating freely about him and without any precaution. There are, of course, other sources of infection from this disease, but, knowing the behaviour of the germ, and the condition under which it grows, this must be a very common way of its propagation. In fact, this disease, though not notifiable, ought to be put under that heading, if not for the purposes of isolation at any rate to see that such care was taken that the danger of propagating the infection was reduced to a minimum, and by issuing printed directions pointing out the danger of the disease and the means to prevent it. It might be well to point to the incidence of this disease in the various wards of the town. Of the 70 deaths, 17 each occurred in the Central and East Wards, 15 in the North, 9 in the West, and 6 in the Grange and South. That is, the mortality from this disease was more than doubled in the case of the North, East, and Central, as compared with the other 3 wards. I had, on a previous occasion, to comment on the prevalence of zymotic disease in these wards as compared with the Grange, West, and South. The remarks made then, apply, I daresay, equally well in dealing with Phthisis, though probably the utter carelessness, or, perhaps, rather ignorance of the people with the nature of the disease in question, may explain this. Other factors are the less modern class of dwellings and the overcrowding and the very many other conditions predisposing to it, found in localities of the poorer classes.

Zymotic Disease.—There were 89 deaths registered of the principal Zymotic Diseases, representing a zymotic death-rate of 2·28 per 1000 of the estimated population as compared with 1·70 last year, and 3·18 the year previous. This is the fourth lowest recorded zymotic death-rate, that of last year being the lowest 1·70, 1888, 1·9 1890, 2·15. Last year was the first occasion on which our Zymotic death-rate was lower than the average for that of the 67 smaller towns, this year we are again below this average, the rate for the towns being 2·11.

The Zymotic deaths registered were as follows :—

Small-pox.	Measles.	Diphtheria including Membranous Croup.	Whooping Cough.	Scarlet Fever.	" Fever."	Diarrhœa.
..	3	3	12	...	8	33

It is worthy of note that there have been no deaths from Scarlet Fever this year, this being only the second occasion on which this has occurred. Of the deaths referred to in the above table 12·1 per cent. were caused by the notifiable diseases, whilst 87·6 per cent were due to disease which are not notifiable. Last year the percentages were respectively 14·3 and 35 7, so that this year the percentage of deaths from the notifiable diseases has diminished.

The percentage mortality of these deaths was as follows :—

Whooping Cough	47·19 per cent.
Diarrhœa	37·07 ,,
" Fever "	8·98 ,,
Diphtheria, including Membranous Croup	3·37 ,,
Measles	3·37 ,,

In the following Table is shown the Ward distribution of the Zymotic Mortality.

Zymotic Deaths, showing the Wards in which they occurred.

	North.	East.	Central	West.	South.	Grange.	Total.
Measles ...	1	...	..	1	...	1	3
Diarrhœa ...	9	6	6	4	5	3	33
Whooping Cough ...	8	10	9	5	9	1	42
Scarlet Fever ...	...	..	..	...	..	...	...
Typhoid Fever ...	3	2	...	2	..	1	8
Diphtheria & Membraneous Croup ...	..	...	...	1	1	1	3
Total ...	21	18	15	13	15	7	89

The contrast shown by this Table is sufficiently striking and needs no comment beyond the reference already made. Those occuring in the Hospital are considered as having occurred in the Wards in which the patient resided previous to removal.

The following Table compares the Zymotic rate, throughout England and Wales, the large and small towns and Jarrow.

Zymotic Death-Rate per 1,000 of the Population.

	Mean. 1871-80.	Mean. 1881-90	Mean. 1891-95.	1896.	1897.	1898.
England and Wales ...	3·38	2·24	2·01	2·16	2·15	2·22
33 Large Towns ..	...	2·90	2·68	2·88	2·87	2·85
67 Smaller Towns ...	3·84	2·38	2·21	2·51	2.41	2·41
Jarrow	**6·14**	**2·6**	**3·32**	**3·18**	**1·70**	**2·28**

Smallpox.—This is the third year in succession in which no cases of Smallpox have been notified. Under our new Vaccination Laws this is, however, an immunity which will very soon disappear.

Measles.—As was more or less expected, we have had another outbreak of this disease during the year, the almost certain recurring biennial epidemic putting in its appearance. Fortunately, the disease was, on the whole, of a mild type, and as a consequence the mortality was exceedingly low, when contrasted with that of some former epidemics which occurred in the borough. The disease first showed itself in the Grange Board Schools. The children from the affected houses were promptly excluded from attending school. This, however, did not prevent fresh cases being reported, and as a consequence, on 2nd September, the Infant Department of this School was closed for one month. This was followed by the closure of the Infant Department of Dunn Street on the 10th October, that of Ellison Street on the 6th December, Croft Terrace on the 20th December, and St. Peters on the 10th January, all for a period of one month. In the case of Dunn Street, Ellison Street, and Croft Terrace Schools, the order had to be extended for a further period of two weeks.

In all these cases the children from affected households were excluded at the earliest moment. This, however, did not seem to affect very much the further spread of the disease in the schools. In Ellison Street, Croft Terrace, and St. Peters, the Schools were at once closed immediately the first case showed itself, so that beyond the infection from the first one or two primary cases, one would have expected that in connection with these Schools it would have been promptly stamped out. This, however, was not so, as in two of them (Ellison Street and Croft Terrace) the order had to be extended for a further period of a fortnight. The disease did not extend to the Wesleyan, Monkton Road Catholic, Grange Catholic, or Monkton Schools.

Owing to the system of Notification by the School Board Authorities, we were able to get the very earliest possible information regarding the cases, and though these cases were at once excluded, as well as other children residing in the same house, it did not seem to in any way influence the spread of the epidemic. With regard to the Grange and Dunn Street, there were 8 to 10 cases notified from each of these schools prior to being closed, and it might possibly be argued that if these schools had been closed immediately the first case was notified, the outbreak might have been circumscribed.

Apart from the reports of the Local Government Board Inspectors who entirely disapprove of such a course, I very much doubt that it would have had such an effect. This course was practically adopted in the case of the Ellison Street and Croft Terrace Schools, and in both of these the order had to be extended, shewing that schools are not the only means of propagating the disease. Probably, however, with the consent of the School Board Managers, it might be worth trying, as heretofore our usual methods having certainly been far from effective. As to the argument that all schools in the town should be closed immediately a single case is notified, the only effect in my opinion would be the permanent closure of the Infant Departments, or something practically approaching that condition. It might probably check a large and sudden outbreak of Measles, such as we generally are accustomed to, but that it would stamp out the disease is hardly to be expected.

As regards the system of Notification by the School Board

Authorities, speaking with special reference to Measles, it is in every way very much more satisfactory than when that disease was notifiable under the Infectious Diseases' Notification Act Not only do we get earlier information, but it also is more complete. Under the Compulsory Notifiable System, under which the law as regarding parents and guardians notifying was practically a dead letter, we could get no information until the case had been visited by a medical man. In scores of cases no medical advice at all was had, and consequently no notification. In a very large number, no advice was got unless the child was seen to be progressing unfavourably, which may have been days or weeks after the original illness, while it was only in comparatively few that the Doctor was early called in and so able to notify. Under the present system, not only do we get immediate information, but it is more complete, for as soon as a child is absent through illness, and there is any suspicion of Measles being the cause, we are at once apprised of it. As this applies to all houses where there are children of school-going age, the number of cases that escape notification must be relatively few, and owing to their not being school-going are, to a certain extent, unimportant. I must thank the School Board Authorities for the fulness and promptness of the assistance given, and congratulate the two Authorities (the School Board and the Town Council) on the arrangement they have come to. The only part I regret is that, even with such complete notification, the disease should, to a certain extent, still baffle our endeavours to curtail its spread. We can, however, still carefully watch it, and with our past experience, hope to be able to cope, if not entirely successful, at least with more prospect of success than we have done in the past. The one satisfactory feature in dealing with this disease, (no doubt as a consequence of the action taken by the Sanitary Authority,) is the greater care now taken by parents, not only in the nursing, but in the equally important matter of preventing communication between those ill with the disease and those not yet affected The fatalistic theory is dying out—that children must have it—and the infectiousness of the disease is coming to be more and more recognised. This will, in the future, help us very considerably in dealing with the disease, and as parents and others come to recognise its true character, we will be better able to cope with it.

There were only 3 deaths from this disease, the death-rate being ·07 of the estimated population—being one of the lowest recorded—as compared with ·13 last year, and 1·27 the year previous. For the 67 towns the rate was ·41.

Scarlet Fever.—There were 98 cases of this disease notified, as against 70 last year, and 219 in 1896. March was the only month in which no case was notified. The disease was more prevalent in the last seven months of the year: the average number of notifications per month received up to and inclusive of May being only 5, whilst for the remainder of the year the average was 10 per month. In no month were there more than 12 notifications received. Last year, the conditions were entirely opposite, the disease being most prevalent in the early part of the year. The disease, as a rule, was very mild, and it is satisfactory to report that there were no deaths due to it. School life did not appear to influence its spread, though its undoubted contagiousness was seen by neighbouring families contracting the disease, evidently through inter-communication. The Ward distribution was as follows: Grange, 21; East, 19; West, 18; Central, 14; South, 14; North, 12. The greater prevalence of this disease in the Grange Ward—not by any means the first time noticed—is a matter which requires consideration and further observance. The mortality this year was nil. Last year, the death-rate was ·02. The rate for the towns this year was ·10.

Of the 98 cases, 58 or 59·1 per cent., were removed to Hospital as compared with 41 or 58·5 per cent., last year.

Typhoid Fever.—There were 41 cases of this disease notified, as against 39 last year, and 66 in the previous year. The disease did not show its usual marked Autumnal increase. For the four months, September to December, 17 notifications were received, 13 of which were in September and October, whilst for the four months, March to June, 20 notifications were received, 14 of which occurred in April and May. There were no cases reported in February and July. In a good number of the cases there was nothing in the houses or in the immediate surroundings to which the disease could be attributed. In a few, defective drains seemed to be the prevailing conditions likely to originate the disease, and in one group foul smells proceeding from a manhole in the immediate neighbourhood was considered to be the cause of the outbreak. This being evidently a filth disease, and filth in any form or any locality always helping to propagate the disease, the very dirty condition of a great number of our back streets, and especially those in the crowded localities, must always be a standing menace to the health of not only those residing in the locality, but of those who may have to pass through. The following is the Ward distribution of the cases :—South 9, North 8, Central 8, West 6, East 5, Grange 5. There were eight deaths from this disease repesenting a death-rate per thousand of ·20 of the estimated population, as compared with ·13 last year, and ·35 the year previous. The rate for the towns was ·21. The case Mortality was equal to 19·5 per cent., as compared with 12·8 per cent. last year, and 19·6 the year previous. Of the 41 cases, 20 or 48·7 per cent, were removed to the Hospital, the percentage being the same as last year, but the number then being 19. The mortality of the Hospital cases was 30 per cent., as compared with 10·5 per cent, last year. Among the home cases the mortality was 9·5 per cent., as compared with 15 per cent. last year. This being a disease, which being prominently associated with filthy conditions, has, I daresay, more than any other, lead those interested in Sanitary matters to consider the best ways and means of dealing with such filth, and so has indirectly helped very considerably to improve our methods of Sanitation. Unfortunately, though these have undoubtedly improved, the disease still continues with us, now and again taking an epidemic form and causing very heavy mortality. Locally, we have not recently had any such epidemic, though the disease has been more or less continuously present. It has been, on previous occasions, pointed out that we belong to a County which has the unfortunate notoriety of being one with the largest prevalence of Typhoid Fever in England and Wales. Such being the case, it may be here interesting to quote from Professor G. V. Poore, of London, who very clearly points out the difficulties in dealing with the disease, and the very varied and opposite conditions under which it prevails: "*British Medical Journal.*

March 4th, 1899"—"Enteric Fever has long been regarded as a filth disease, and there is abundant evidence that filthy surroundings, such as water-logged privies, soil sodden with the leakage of sewers, the air of the cesspools and traps, proximity of water-closets to the kitchen, in some way or another predispose to it. While we agree as to the fact, we may differ as to the explanation. Some would assert that the bacillus typhosus is actually growing and spreading in the filth, and, indeed, that is possible but direct evidence of it is wanting. Some would even say that the soil being inoculated, the specific organism may continue to grow and spread in it, far away from the point of inoculation, and so (by growth, not irruption) may poison the local water at a distance. Of this, there is positively no evidence whatever. If, for the sake of argument, we allow that the bacillus typhosus may grow in the soil, we have to ask how it emerges from the soil to do us harm? We are here confronted with contradictions. Robertson and Gibson showed that the bacillus disappeared in the winter, to reappear in the summer, while at Munich the increase of Enteric was a phenomenon of mid-winter. In Buda-Pesth it is associated with a rising ground-water, and at Munich with the opposite condition. In this country, it is a disease of Autumn and the period of floods, while others assert that it may be conveyed by dust, which ought to produce a prevalence in March. The opinions held by Sanitarians and Bacteriologists on this question differ widely, but there will be a concensus of opinion that a water-logged soil, rich in organic matter, is the one in which bacillus typhosus is most likely to flourish. If this should be true, the official position that in sewage treatment filtration through earth is a *sine qua non* becomes untenable. . . . "

Bacteriologists have abundantly proved that the germs of disease are ubiquitous. They are found in earth, air, water; in the dust and on the walls of our dwellings, in mud, clothing, meat, milk, bread, and even occasionally, as Andrews has shewn, in hot baked rice pudding. The fact that many of us live to a respectable age, and die from something that is non-infective, cannot but make us consider whether the immunity of the individual is not the fact which tends more than any other to the improvement of the public health. It is wholesome for us to remember that the greatest sanitary achievement of our time has been the practical disappearance of Typhus Fever. Of the *causa causans* of this disease we know nothing. Its absolute disappearance has not been produced by successful germ hunting. Its disappearance is probably due to the improved conditions under which the masses of the population live, as regards food and cleanliness Few of us doubt that if this country should become involved in war, and food should become dear and scarce in consequence, the relative immunity of the population would be lessened and Typhus Fever would regain its sway. Whether or not we succumb to an infective disease probably depends, in a great measure, on the dose of the poison we receive. When an endemic disease, such as Enteric Fever, becomes epidemic, it is due to the sudden dissemination of a poison in relatively large or viralent doses. Even in the most severe epidemics it is rather over more than 10 per cent. of those who have run obvious risks of receiving the poison to be attacked. The question of virulence and vulnerability are most important. It seems to be well established that the virulence of the pathogenic microbes varies immensely with the conditions of soil, temperature, air, sunlight, etc., under which they are grown, and it must be remembered that it is not always the pure cultivation which manifests most virulence. . .

There can be no doubt that the health and vigour of the individual is all-important in relation to infective disease. Nothing is better established with regard to tubercule than its relation to overcrowding and unwholesome occupations. So "filth diseases" are especially fatal to those who live in the midst of filthy surroundings. It is not, I think, at all necessary to assume, although it is possibly the case, that specific organisms are growing in the filth. In the cramped dwellings of the artisan, where the privy is often barely six feet from the back door, the risks of faecal befoulment of the food or person are very great, and when in such places large pails of faecal matter are left to putrify for a week or more, it is not to be wondered at that the inhabitants should show an undue predisposition to the infection of Enteric Fever, as has been pointed out by Boobbyer and others. But it must be remembered that whatever putrifaction is going on, and whereever anaerobic organisms are growing in a filth-sodden soil, unwholesome gases, such as CO_2, H_2S, CH_4, and H, are being given off, and it is impossible not to admit that the breathing of these gases from week end to week end in the crowded courts of a great city may so lower the vitality of the body as to increase its vulnerability of infection of all kinds We must admit that to live in stinks and filth may greatly depress the health, and increase the susceptibility to infection by microbes."

Diphtheria.—There were only 7 cases of this and Membraneous Croup notified, as compared with 23 last year, and 26 the year previous. Two of these cases were in infants under 1 year, 1 in children under 5 years, and only 1 in an adult. There was no connection whatever between any of them. Two were notified in the months each of January, May and October, and 1 in September. In only 1 case was there a suspicion of a defective drain having originated the disease. There were 3 deaths due to it, equal to a case mortality of 37·5 per cent., as compared with 13·0 per cent. last year. The death-rate per 1000 of the population was ·076, as compared with ·081 last year. The rate for the towns was 0·28.

Whooping Cough.—There were 42 deaths from this cause during the year, as compared with 7 last year. As has already been mentioned, this disease was continuously present in the Borough during the greater part of the year, in each month until October there being some deaths reported as due to it, the greater number being in the months of May, June and July This is exceptional, as generally during milder weather the complications ensuing as a result of this disease, and which most frequently are the cause of death, are not so apt to occur. Of the total 42 deaths, 18 were in infants under 1 year, the remainder being all under 5 years of age. The Ward distribution of the Mortality was as follows—East, 10; Central and South, 9 each; North, 8; West, 5; Grange, 1. The death-rate per 1,000 of the population was 1·07, as against ·189 last year. For the Towns the rate was 0·27.

Diarrhœa.—There were 33 deaths from this cause, 23 of which were in infants under 1 year, 6 in children over 1, but under 5 years of age. The remaining deaths occurred in adults. The Ward distribution of the deaths was as follows:—North, 9; East and Central, 6 each ; South, 5 ; West, 4 ; Grange, 3. The death-rate per 1,000 of the population was ·846, as compared with 1·13 last year. The rate for the 67 towns was 1·09.

Infectious Diseases' (Notification) Act.—There were 185 notifications received during the year, as compared with 161 last year, and 337 in 1896. As compared with last year, there is an increase in Scarlet Fever, Erysipelas and Typhoid Fever, while Diphtheria shows a decrease. (See table in appendix.)

Hospital.—In the following table is shown the cases admitted to Hospital, and the Mortality occuring there :—

During the year we had, on various occasions, to get extra assistance for the nursing staff, a trained nurse being employed on one occasion for three consecutive months At that time we had some very bad typhoid cases, and, under the circumstances, a thoroughly trained nurse was indispensable, seeing that neither of the probationers had much experience in this disease. I should, however, strongly advise that another probationer be permanently engaged as with cases in the two ward blocks, and even with the assistance of an extra hand besides, the staff is not by any means more than would be required to have efficient nursing, and without entailing too much work. No one who has not had practical experience in the matter can thoroughly understand and appreciate the very trying and ardous work which nurses at times have to perform. Mrs. Williams continues to discharge her duties very satisfactorily. I might mention that the Telephonic communication which it was decided to establish with the Hospital has not yet been commenced.

The absence of a disinfector might again be noted, as also the limited accommodation for the staff necessary for the working of the Hospital.

Disease.	Admitted.	Recovered.	Died.	Mortality per cent of Admissions.
Scarlet Fever	58	58	—	Nil.
Typhoid Fever	20	14	6	30
Total	78	72	6	7·6

The admissions to Hospital last year were :—Scarlet Fever, 41 ; Typheid Fever, 19 ; Mortality, 33 per cent. of admissions.

General Sanitary Work.—Mr Batey, as usual has been very busy in his department, having served 519 notices for breaches of the Public Health Acts, details of which are given in his report, which is appended. This in itself entails a lot of work, besides which there is the visiting of houses from which infectious disease is reported, the removal of patients to the Hospital when necessary, the disinfection of houses, and the occasional visiting of patients which are being nursed at home, to see that they are conforming with the isolation regulations. Under the new regulation, also with the School Board, there is entailed a very large amount of work. The cases reported by them during the year were as follows :—Measles, 454 ; Whooping Cough, 398 ; Chicken Pox, 95 ; Mumps, 78 , Riggworm, 21. In each of these cases notices for the exclusion of children have been sent to the Board Offices, whilst in the case of Measles no less than 263 special visits were made to the houses. All this entails a vast amount of work, and is really more than one Inspector can satisfactorily overtake. In Dr. Thompson's report on Measles, published some time ago, he therein cites Jarrow as one of the Authorities whose staff is insufficient on ordinary occasions, and which, in times of epidemic, was, of course, very much more so.

Insanitary Property.—There are still a good many places which, though not perhaps legally insanitary, are still in such a condition as to be anything but satisfactory. In by far the larger number of these places the habits of the occupants are chiefly to blame, and in some old property, however much it may be repaired or improved, the class of people who live there soon have it in as bad a condition as before.

In some of this property, however, I should like to see cemented yards substituted instead of the bricks. The latter, under any circumstances, are difficult to keep clean, and with those not very particular as to cleanliness, soon get very filthy. We are, however, gradually having these removed, and though the process may be slow, it is, with our present powers being done as quickly as possible.

Privy Middens.—These are decreasing very satisfactorily, 79 having been removed during the year and dry earth closets substituted.

Scavenging and Removal of Refuse.—I have had, in previous reports, to comment on the unsatisfactory state of the scavenging of the Town. It is still most unsatisfactory, the streets and lanes being often in a very filthy condition. In dirty weather this can not be avoided, and if it was exceptional, would not require any comment. It is, however, not so, and is a matter which certainly requires immediate attention. As to the removal of refuse, owing to the number of complaints regarding the unsatisfactory way in which this was being done, there was a special committee formed to make a re-arrangement. Since then the complaints have not been so numerous. It is only fair, however, to state tnat the Contractors say that owing to the disagreeable nature of the work, they find at the present time great difficulty in getting men to do the work.

Prevention of Nuisances.—Ten convictions were got in cases where proceedings were taken for nuisances arising from improperly kept earth-closets.

For actions under the Food and Drugs' Act for Precautions against Infectious Diseases, and for Inspection of Dairies, Milk, Lodging Houses, etc., see Inspector's Report.

TABLE OF DEATHS during the Year, 1898, in the Jarrow Urban Sanitary District, classified according to Diseases, Ages, and Localities.

Names of Localities adopted for the purpose of these Statistics; public Institutions being shown as separate localities.	Mortality from all Causes, at subjoined Ages.								Mortality from subjoined Causes, distinguishing Deaths of Children under Five Years of Age.																					
													Fevers.																	
	At all ages.	Under 1 year.	1 and under 5.	5 and under 15.	15 and under 25.	25 and under 65.	65 and upwards.		Smallpox.	Scarlatina.	Diphtheria.	Membranous Croup.	Typhus.	Enteric or Typhoid	Continued	Relapsing.	Puerperal	Cholera.	Erysipelas.	Measles.	Whooping Cough	Diarrhœa and Dysentery	Rheumatic Fever.	Phthisis.	Bronchitis, Pneumonia, and Pleurisy	Heart Disease	Tubercular Diseases, other than Phthisis	Injuries.	All Other Diseases.	TOTAL.
a.	b.	c.	d.	e.	f.	g.	h.	i.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
The Borough ...	599	201	100	28	31	174	65	Under 5	...		2	1	...	...	...	...	...			3	42	29	0	6	50	2	22	6	135	298
								5 upwds	...	...	0	0	...	2	...	...	...	...	...	0	0	4	2	51	53	37	9	16	127	301
Primrose Hill Hospital ...	6	...	...	...	4	2	...	Under 5	...	...	...	...	...		...	...	...	...	...	...	...	...	...		...	...	...	...	...	0
								5 upwds	...	...	...	...	...	6	...	...	...	...	...	...	...	...	...	...	...	...			...	6
Memorial Hospital	8	...	...	...	2	6	...	Under 5	...	...	...	...	...	...	...	...	...		...		...	...	...	...	...	...		0	...	0
								5 upwds	...	...	...	...	...	...	...	...		...	...	...	...	...	...	...	...	...		5	...	8
Floating Hosp., River Tyne...	2	...	...	...	2		...	Under 5	...	...	...	...	...	0		...	...	...		...	...	...	...	...	...	...	...	...	...	0
								5 upwds	...	...	...	...	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2
Totals....	615	201	100	28	39	182	65	Under 5	...	...	2	1	...	0	...	...	...	...	...	3	42	29	0	6	50	2	22	6	135	298
								5 upwds		...	0	0	...	10	...					0	0	4	2	51	53	37	9	21	127	317

The subjoined numbers have also to be taken into account in judging of the above records of mortality:—

Deaths occurring outside the district among persons belonging thereto.*	59	7	...	3	3	26	20	Under 5	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0	2	0	1	0	4	7
								5 upwds	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	13	16	2	0	3	18	52
Deaths occurring within the district among persons not belonging thereto.†	10	1	...	...	1	6	2	Under 5	...	...	...	...	...	0	...	...	...	...	...	...	...	...	...	...	0			0	1	1
								5 upwds	...	...	...	...	...	2	...	...	...	...	...	...	...	...	...	...	1		...	5	1	9

* Harton Workhouse, 51; 6 at Sedgefield Lunatic Asylum.

TABLE OF POPULATION, BIRTHS, AND OF NEW CASES OF INFECTIOUS SICKNESS,

Coming to the knowledge of the Medical Officer of Health, during the year 1898, in the Jarrow Urban Sanitary District; classified according to Diseases, Ages, and Localities.

Names of Localities adopted for the purpose of these Statistics; Public Institutions being shown as separate localities.	Population at all Ages.		Registered Births.	Aged under 5 or over 5.	New Cases of Sickness in each Locality, coming to the knowledge of the Medical Officer of Health.												Numbers of such Cases Removed from their Homes in the several Localities for Treatment in Isolation Hospital.,											
									Fevers.												Fevers.							
	Census, 1891.	Estimated to middle of 1898.			Smallpox.	Scarlatina.	Diphtheria.	Membranous Croup.	Typhus.	Enteric or Typhoid.	Continued.	Relapsing.	Puerperal.	Cholera.	Erysipelas.		Smallpox.	Scarlatina.	Diphtheria.	Membranous Croup.	Typhus.	Enteric or Typhoid.	Continued.	Relapsing.	Puerperal.	Cholera.	Erysipelas.	
(a.)	(b.)	(c.)	(d.)	(e.)	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
The Borough	33682	39000	1183	Under 5	..	31	3	1	..	8	...	..	0	..	5	..	..	17	..	..	..	1	..	..	..	..	..	..
				5 upwds	..	67	3	0	..	33	..	..	1	..	30	..	..	41	..	..	..	19	..	—	..	..	..	..
Memorial Hospital ...	.	..	..	Under 5	..	..	..	..	..	..	—	—	..	..	0	..	..	..	..	..	..	..	..	..	..	..	..	..
				5 upwds	..	..	..	..	..	..	..	..	..	..	3	..	..	..	..	..	..	..	..	..	..	..	..	..
Totals. ...	33682	39000	1183	Under 5	..	31	3	1	..	8	...	..	0	..	5	..	.	17	..	..	..	1	..	..	..	..	..	..
				5 upwds	..	67	3	0		33	..	..	1	..	33	..	.	41	..	..	...	19	..	..	..	.	..	..

Notification of Infectious Disease is compulsory in the District since 1872.

Isolation Hospital situated at Primrose Hill, a short distance outside Borough.

TABLE 3.—Deaths occuring during the year 1898, in the Jarrow Urban Sanitary District, classified according to ages, disease, and the months in which they occurred.

Ages at Death.							Months.	Fatal Diseases.																			
														Continued Fevers.													
Under 1 year.	1 and under 5.	5 and under 15.	15 and under 25.	25 and under 60.	60 upwards.	Deaths at all Ages.		Smallpox.	Measles.	Scarlet Fever.	Diphtheria.	Membranous Croup.	Whooping Cough.	Typhus.	Enteric or Typhoid.	Other and Doubtful.	Diarrhœa and Dysentery.	Cholera.	Rheumatic Fever.	Erysipelas.	Pyæmia or Septicæmia.	Puerperal Fever.	Phthisis.	Bronchitis, Pneumonia, and Pleurisy.	Heart Disease.	Injuries.	All other Diseases.	Total.
12	8	2	2	18	7	49	January....	....	....	....	2	....	3	....	....	....	1	....	....	....	....	....	3	9	5	1	25	49
15	6	3	3	24	12	63	February ..	....	1	....	....	....	5	....	1	....	....	....	....	....	....	....	2	17	8	3	26	63
13	6	2	9	15	4	49	March......	....	....	....	....	....	3	....	1	....	....	....	....	....	....	....	6	10	1	5	23	49
21	5	2	2	12	9	51	April........	....	....	....	....	....	5	....	2	....	1	....	....	....	....	....	3	13	2	....	25	51
19	9	3	1	19	6	57	May.........	....	....	....	....	....	7	....	....	....	....	....	....	....	....	....	5	9	4	2	30	57
10	13	3	3	14	3	46	June	....	....	....	....	....	7	....	....	....	....	....	....	....	....	....	11	9	....	3	16	46
18	15	2	6	19	10	70	July..........	....	1	....	....	....	8	....	....	....	....	....	2	....	....	....	8	14	3	3	31	70
25	4	3	1	11	5	49	August	....	....	....	....	....	1	....	1	....	8	....	....	....	....	....	5	9	5	....	20	49
30	6	2	1	13	5	57	September .	....	....	....	....	....	3	....	....	....	13	....	....	....	....	....	5	4	3	1	28	57
20	12	2	4	16	7	61	October....	....	....	....	....	....	....	....	2	....	10	....	....	....	....	....	7	5	2	3	32	61
12	10	5	5	19	8	59	November..	....	1	....	....	1	....	....	1	....	....	....	....	....	....	....	9	12	4	5	26	59
12	6	2	4	17	12	53	December..	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	6	9	4	2	32	53
207	100	31	41	197	88	664	Totals......	....	3	....	2	1	42	....	8	..	33	....	2	....	....	....	70	120	41	28	314	664

TABLE 4.—Notification of Cases of Infectious Disease received at the Health Office during 1898.

DISEASES.	Jan.	Feb.	March.	April.	May.	June.	July.	August.	Sept.	Oct.	Nov.	Dec.	Total
Smallpox	...	.	...	..	...	...	...	...	...	...	...	...	...
Typhus Fever	...	...	...	.	..	...	...	...	...	...	.	...	...
Scarlet Fever	5	7	...	7	5	12	12	11	9	11	8	11	98
Enteric Fever	1	..	4	7	7	2	...	3	7	6	2	2	41
Diphtheria[*] and Membranous Croup	2	..	...	...	2	...	..	...	1	1	1	...	7
Erysipelas	1	2	5	5	2	2	4	2	2	4	4	5	38
Totals	9	9	9	19	16	16	16	16	19	22	15	18	184

[*] There was 1 case of Puerperal Fever notified.

I.—PUBLIC HEALTH ACTS.	No. of Informal Written Notices by Inspector.	No. of Formal Notices by order of Authority.	No. of Nuisances abated after Notice.	General Remarks.
Dwelling-houses—				*Bye-Laws for Prevention of Nuisances.*—Ten persons were summoned for Breach of Bye-Law 3, for permitting Liquid and Offensive Matter to run from Box-Closets into Back Streets; 3 were fined 2s. 6d. each, 3 were fined 1s. each and 2s. 10d. costs, while 4 were only fined 1s. each including costs. The costs therefore had to be paid by the prosecution for endeavouring to force the law. *Ashpits Altered.*—79 Ashpits were removed and Box-closets were put in their place, and 4 repaired. *Shop Hours Act.*—Two persons were summoned under this Act, one for Breach of Article 3, and was fined 5s. and costs; one for Breach of Articles 3 and 4, and was fined 2s. 6d. and costs in each case. *Infectious Disease.*—185 Notices were received under this Act. In each case the house was visited, and the person in charge of the house was instructed as to disinfection and isolation, etc. On ascertaining the school, if any, the children attended notice was sent to the School Board advising them, so that the children are not allowed to go to school from an infected house for a given period, according to the nature of the infectious disease. This applies also to Measles and other diseases, so that this part of the work takes up a great deal of the Inspector's time. *Hospital.*—78 persons were removed to the Hospital under my supervision, in every case where possible the house is fumigated, if not done, then all bed and body linen is steeped in disinfectant solution for a time before washing.
Foul Conditions	10	..	10	
Structural Defects	27	..	27	
Overcrowding	7	...	7	
Lodging-houses. To Limewash	30	..	30	
Dairies and Milkshops visited occasionally	...	..	..	
Cowsheds ... ditto	4	..	4	
Bakehouses	16	..	16	
Slaughter-houses To Limewash	26	...	26	
Ashpits and Privies	83	9	83	
Deposits of Refuse and Manure	16	..	16	
Water Closets	7	..	7	
Defective Yard Paving	51	7	51	
House Drainage—				
Defective Traps	4	..	4	
No disconnection from Sewers	13	...	13	
Other Faults	86	10	86	
Water Supply	27	..	27	
Pigsties	17	..	17	
Animals Improperly Kept ...	3	...	3	
Offensive Trades	...	...	...	
Smoke Nuisances	...	...	...	
Other Nuisances	66	...	66	
Totals	493	26	493	

II.—WATER, FOODS AND DRUGS.	No.	Remarks.
Samples of Water taken for analysis ...		**FOOD AND DRUGS ACT.** *Samples of Milk.* 1 Sample, 17 per cent. deficit of fat. Fined £1 and £1 6s. 0d. costs. 1 Sample, 10 per cent. of added water. Fined £1 and £1 6s. costs.
Samples of Water condemned as unfit for use		
Samples of Water taken for Analysis		
Seizure of Unwholesome Food		
Convictions for exposing or selling unwholesome Food		
Samples of Food and Drugs taken for Analysis	35	
Samples of Food found Adulterated	2	
III.—PRECAUTIONS AGAINST INFECTIOUS DISEASE.		
Lots of infectious bedding stoved or destroyed		All where possible, if patient is not removed to Hospital, the house is visited frequently during convalescence, then finally disinfected.
Houses disinfected after Infectious Disease ...		
Schools do. do. do. ..		
Prosecutions for exposure of infected persons or things		
Convictions for do. do. do.		

EDWARD BATEY, INSPECTOR OF NUISANCES

February, 1898.